Whole to Part

L1S1.A: Structure and Function
In multicellular organisms, the body is a system of multiple interacting subsystems. These subsystems work together to form tissues and organs that are specialized for particular body functions. Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell.

Engaging in Argument from Evidence
Engaging in argument from evidence in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for a solution or a model for a phenomenon. Use an oral and written argument supported by evidence to support or refute a claim or explanation.

Developing and Using Models
Developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems. Develop and use a model to describe phenomena.

Structure and Function: Complex microstructures and systems can be visualized, modeled, and used to describe how their function depends on the relationships among its parts, therefore complex natural structures/systems can be analyzed to determine how they function.

Scale, Proportion, and Quantity: Phenomena that can be observed at one scale may not be observable at another scale.

Science in a Human Endeavor: Scientists and engineers are guided by habits of mind such as intellectual honesty, tolerance of ambiguity, skepticism, and openness to new ideas.

1.1 Cellular Functions Performance Task—Original Version with Organelle Video for Part 1

**MS-LS1-2.** Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function. [Clarification Statement: Emphasis is on the cell functioning as a whole system and the primary role of identified parts of cell, specifically the nucleus, chloroplasts, mitochondria, cell membranes, and cell wall.] [Assessment Boundary: Assessment of organelle structure/function relationship is limited to the cell wall and cell membranes. Assessment of the function of the other organelles is limited to their relationship to the whole cell. Assessment does not include the biochemical function of cells or cell parts.]

**MS-LS1-3.** Use arguments supported by evidence for how the body is a system of interacting subsystems composed of groups of cells. [Clarification Statement: Emphasis is on the conceptual understanding that cells form tissues and tissues form organs specialized for particular body functions. Examples could include the interaction of subsystems within a system and the normal functioning of these systems.] [Assessment Boundary: Assessment does not include the mechanisms of one body system independent of others. Assessment is limited to the circulatory, excretory, digestive, respiratory, muscular, and nervous systems.]

**1.2 Microscopic Investigations**

**MS-LS1-1.** Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells. [Clarification Statement: Emphasis is on developing evidence that living things are made of cells; distinguishing between living and nonliving things, and understanding that living things may be made of one cell or many varied cells.]

**1.3 Intro into Earth Systems**

**MS-ESS2-4.** Develop a model to describe the cycling of water through Earth’s systems driven by energy from the sun and the force of gravity. [Clarification Statement: Emphasis is on the ways water changes its state as it moves through the multiple pathways of the hydrologic cycle. Examples of models may be conceptual or physical. [Assessment Boundary: A quantitative understanding of the latent heat of vaporization and fusion is not assessed.]

**MS-ESS2-4.** Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates. [Clarification Statement: Emphasis is on how patterns vary by latitude, altitude, and geographic land distribution. Emphasis of atmospheric circulation is on the suction-driven (wind belt), the Coriolis effect, and mass distribution; emphasis of oceanic circulation is on the transfer of heat by the global ocean convection cycle, which is constrained by the Coriolis effect and the outlines of continents. Examples of models can be diagrams, maps, globes, or digital representations.] [Assessment Boundary: Assessment does not include the dynamics of the Coriolis effect.]

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**Intro to NGSS:** Living vs. Nonliving

The emphasis of our three year sequence is to find ways to integrate the standards and find opportunities where we can return big concepts throughout each grade levels.

Spend some time on non-living vs. living seems to help with both of our intentions.